

Amendments to the Drawings:

The attached replacement drawing sheets make changes to the Figures as follows:

(1) original Figure 2 is removed, (2) original Figures 3-6 are re-numbered as Figures 2-5, respectively, and (3) the caption for Figure 5 is revised to read "Prior Art." The attached replacement drawing sheets thus replace the original sheets with Figs. 1-5.

Attachment: Replacement Sheets

REMARKS

Claims 1-9, 11-27, 29-38, 40-50, 52, 53, 55, 56, 58, 59, 61-63, 88, 90-93, 95-98, 100-103, 105, 106, 108 and 109 are pending in this application.

By this Amendment, (1) claims 10, 28, 39, 51, 54, 57, 60, 89, 94, 99, 104 and 107 are canceled, (2) the specification is amended to correct typographical errors therein, (3) claims 1-9, 11-27, 29-38, 40-50, 52, 53, 56, 58, 59, 61-63, 88, 90-93, 95, 97, 98, 100, 102, 103, 105 and 106 are amended to address the rejection of these claims under 35 U.S.C. §112, second paragraph, including using proper Markush group language and providing proper antecedent basis for terms throughout the claims, and (4) prior Figure 2 is canceled, and remaining Figures 3-6 are re-numbered as Figures 2-5, Figure 5 now also being identified as "Prior Art."

In view of the foregoing amendments and the following remarks, reconsideration of this application is respectfully requested.

I. Objections to the Drawings

Figures 2 and 6 were objected to as allegedly requiring the caption "Prior Art." This objection is respectfully traversed.

As pointed out in the prior response, Figure 2 showed an example structure of the catalyst described and claimed in the application. The label "Prior Art" would thus not be appropriate. In view of the Patent Office's incorrect position, and in view of the fact that Figure 2 is not necessary to understanding the claimed invention (because the textual description is more than sufficient and does not require illustration, Applicants have canceled Figure 2. The textual description of prior Figure 2 in the Brief Description of the Drawings section has been retained on page 14 of the specification.

Further, Applicants have revised Figure 6 (now Figure 5) to include the label "Prior Art."

In view of the foregoing, reconsideration and withdrawal of the drawing objection are respectfully requested.

II. Objections to the Specification

The Patent Office requested that the spelling errors regarding "vacuum" and "deuterium" be corrected. These spelling errors have been corrected by this Amendment.

Further, the specification has been reviewed for other errors as requested, and additional corrections of spelling errors that were located are also included in the above amendments to the specification.

In view of the foregoing, reconsideration and withdrawal of the objections are respectfully requested.

III. Rejection Under 35 U.S.C. §112, Second Paragraph

Claims 1-63 and 88-109 were rejected under 35 U.S.C. §112, second paragraph. Reconsideration and withdrawal of this rejection are respectfully requested.

Claims 1-9, 11-27, 29-38, 40-50, 52, 53, 56, 58, 59, 61-63, 88, 90-93, 95, 97, 98, 100, 102, 103, 105 and 106 have been extensively amended to use consistent terminology for antecedent basis, and Markush group language has also been revised throughout the claims so as to be proper. Claims 10, 28, 39, 51, 54, 57, 60, 89, 94, 99, 104 and 107 have been canceled. These revisions are made in accordance with the suggestions of the Patent Office in the Office Action, and thus are believed to address several of the issues raised by the Patent Office.

The Patent Office objected to the term "high boiling" as allegedly being an unclear, relative term. So as to address this rejection and conform the claims to the specification, this term has been amended throughout the claims to require a boiling point of less than 300°C.

The Patent Office also objected to the term "molecularly well defined." Applicants submit that this term is well known in the art, and means that the catalytic entity has a specific molecular formula, i.e., it is not a mixture of unknown composition.

The Patent Office also objected to the term "vigorous" as allegedly being an unclear, relative term. To address this rejection, the claims have been amended to recite that the agitation is sufficient to maintain the suspension, which definition is clear from the specification and context of the claims.

Finally, the Patent Office indicated that it was not clear in claim 93 how aging and solvent removal could both occur at the same time. Claim 93 is thus revised to not require any concurrent timing of the steps.

For all the foregoing reasons, reconsideration and withdrawal of the rejection under 35 U.S.C. §112, second paragraph are respectfully requested.

IV. Rejection Under 35 U.S.C. §112, First Paragraph

Claims 1-63 and 88-109 were rejected under 35 U.S.C. §112, first paragraph, allegedly because the specification does not enable the entire breadth of the claims. Applicants respectfully traverse this rejection.

The Patent Office has alleged that the present claims are too broad in that they are allegedly devoid of composition limitations and define the catalyst in purely functional language. The Patent Office has clearly failed to understand the present claims or the scope thereof.

The various claims of the application each include a definition of a solid catalytic composition having deposited thereon a solid catalytically active material of group 2 containing material of catalytically active anionic entity. This definition is specific, and is fully described in the specification such that the specification clearly enables the full scope of such a catalytic composition.

Contrary to the assertions in the Office Action, the defined catalytic composition cannot be extended to include catalysts like monoliths or Raney Nickel. Such materials are plainly not a solid catalytic composition having deposited thereon a solid catalytically active material of group 2 containing material of catalytically active anionic entity.

Applicants respectfully submit that the claims are thus not as broad or general as alleged by the Patent Office. Instead, the claims are specific, with more particular details of the catalyst composition recited in dependent claims. The specification sufficiently describes the aspects of the catalytic composition such that one of ordinary skill in the art would have readily been enabled to have practiced the entire scope of the claims.

For at least the foregoing reasons, Applicants submit that this rejection is improper and must be withdrawn. Accordingly, reconsideration and withdrawal of this rejection are respectfully requested.

V. Rejection Under 35 U.S.C. §103(a)

Claims 1-63 and 88-109 were rejected under 35 U.S.C. §03(a) as allegedly being unpatentable over U.S. Patent No. 4,994,427 (hereinafter Davis). This rejection is respectfully traversed.

In the Office Action, it was alleged that Davis suggested the claimed subject matter, including use of an alkaline earth counter ion. Applicants submit that Davis would not have led one of ordinary skill in the art to the claimed subject matter.

Davis describes a catalyst comprising a solid surface having immobilized thereon an aqueous solution of one or more organic complexes of rhodium. The catalyst is useful for promoting hydroformylation, hydrogenation and other chemical reactions in essentially water-immiscible organic liquid reactant phases. See the Abstract.

As was detailed in the January 9, 2004 Amendment, supported liquid phase catalysts such as described in Davis are critically sensitive to the character of the reaction medium and

are often leached in to the reaction medium, depending upon the nature of the solvent. The applicability of such catalyst systems is thus strictly limited to vapor phase reactions.

Davis describes a technique wherein a solution of a water-soluble catalyst is distributed on a high surface area solid. The aqueous film of catalyst-containing solution remains insoluble in the non-polar organic phase. Thus, after reaction, the solid catalyst can be recovered by simple filtration. Applicability of such catalyst is limited to reactions involving water insoluble reaction media. Moreover, such catalysts are sensitive to the content of water. In addition, the catalyst is dissolved in a liquid, which is immobilized on a solid support.

In the present application, however, the entire catalytic entity is a solid, and is present on a solid support. Davis fails to teach or suggest a catalyst having such a solid structure.

Although Davis mentions use of alkali metals, alkaline earth metal, lead, zinc, copper and ammonium and $N[R]_4^+$, these pertain to materials that are soluble in a liquid that is immobilized on a solid support (see Davis' claim 1). The present claims relate to a catalytic entity that is itself a solid and is precipitated on a solid support. This catalytic entity of Davis, however, is soluble in a liquid that is supported on a solid support, which is a completely different concept from the present claims.

In other words, Davis deals utilizes soluble metal complexes. Although it is mentioned that alkaline earth counter ions can be contemplated for this composition, it is not possible for a person skilled in the art to arrive at an insoluble solid composition when the object of Davis' invention is for a soluble catalyst composition.

Davis is thus clearly not related to the presently claimed subject matter and would not have led one of ordinary skill in the art to the presently claimed subject matter.

Finally, Applicants note that Davis fails to teach or suggest any of the preparation methods recited in claims 53, 55, 56, 58, 59, 61-63, 88, 90-93, 95-98, 100-103, 105, 106, 108 and 109 of the present application.

For the foregoing reasons, reconsideration and withdrawal of this rejection are respectfully requested.

VI. Conclusion

In view of the foregoing, it is respectfully submitted that this application is in condition for allowance. Favorable reconsideration and prompt allowance of claims 1-9, 11-27, 29-38, 40-50, 52, 53, 55, 56, 58, 59, 61-63, 88, 90-93, 95-98, 100-103, 105, 106, 108 and 109 are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number set forth below.

Respectfully submitted,


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